

WATERS BLUFF BRIDGE
Texas Historic Bridges Recording Project
Spanning Sabine River at County Route 356
Winona Vicinity
Smith County
Texas

HAER No. TX-65

HAER
TEX
212- WINO.V,
1-

BLACK AND WHITE PHOTOGRAPHY
WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Department of the Interior
1849 C St., NW
Washington, DC 20240

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WATERS BLUFF BRIDGE

HAER No. TX-65

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Location: Spanning Sabine River at County Route 356, Winona vicinity, Smith County, Texas; also County Route 425, Big Sandy vicinity, Upshur County, Texas.
UTM: 14/299680/3603070
USGS: Hawkins, Texas, quadrangle (1981).

Date of Construction: 1911.

Designer: Austin Brothers, Dallas, Texas.

Builder: Austin Brothers, Dallas, Texas.

Present Owner: Upshur County and Smith County.

Present Use: Out of service.

Significance: The Waters Bluff Bridge is a rare survivor of the once-ubiquitous pin-connected camelback through truss. It is also a rare example of an early bridge by an important Texas company.

Historian: Dr. Mark M. Brown, August 1996.

Project Information: This document was prepared as a part of the Texas Historic Bridges Recording Project performed during the summer of 1996 by the Historic American Engineering Record (HAER). The project was sponsored by the Texas Department of Transportation (TxDOT).

I. Introduction

The Waters Bluff Bridge is important as one of the few remaining examples of the once-common camelback highway bridge in Texas. It may well be one of only two single-span, pin-connected, examples surviving in the state.¹ In addition, the Waters Bluff Bridge is one of the earliest surviving dated examples of the work of Austin Brothers of Dallas, Texas. After a brief description, this report will trace the history of the bridge and conclude with a brief sketch of the early history of Austin Brothers.

II. Description

The Waters Bluff Bridge is 237'-0" in overall length, and has a 148'-0" clear-span steel pin-connected camelback through truss (see Figure 1).² The truss' maximum height is about 24'-0". The top chord is fabricated of 8" channels, 12" plate, and lacing bars. Dimensions of the upper lateral cross bracing are unknown. Vertical compression members are two 5" channels laced together. Diagonal tension members are a variety of square- and rectangular-section eye bars, with and without turnbuckles. The lower third of the vertical tension members connecting panel point U1 with L1 and U7 with L7 employ a pin-connected member, composed of two channels, connecting the tension member to the deck beam and the lower chord below. Eye bars, possibly of various cross sections, are used exclusively on the lower chord. Lower chord pins are 2" diameter, except the pins at L0 and L8 which are 2 1/2" diameter. From flange to flange of the vertical compression members, the overall width of the wooden deck is about 16'-2". Timber planking is supported by 7" channel and I-beam stringers resting on 12" deck beams.

¹ The other known surviving example of a single-span pin-connected camelback highway bridge in Texas is the Bryant Station Bridge, Milam County, Texas. See U.S. Department of the Interior, Historic American Engineering Record (HAER) No. TX-60, "Bryant Station Bridge," 1996, Prints and Photographs Division, Library of Congress, Washington, D.C.

² The proper name of the bridge is problematic. Robert Walters operated a ferry across the Sabine in this area by 1849. It was known as Walters Bluff Ferry in light of the steep escarpment on the right bank. The confusion starts in 1871 when an African-American family, Samuel and Priscilla Waters (no "I"), settled about two miles south of the crossing. Thus, in 1911, the Commissioners Court Minutes for both Upshur and Smith Counties use the term "Waters Bluff crossing". The *Upshur County Echo* and the *Big Sandy Times* (reprinted in the *Gilmer Mirror*) follow the same practice. See Andrew L. Leath, "Starrville," *Chronicles of Smith County, Texas* 23, No. 1 (Summer 1984), pp. 5, 30; Georgia Laschinger, "History of Walters Bluff Ferry," typescript, [1968], Texas Historical Commission (field note copy courtesy of Mary Kirby, Gilmer, Texas). All dimensions that follow are approximate and are based on a bridge inspection report prepared by Wisenbaker, Fix and Associates, Inc., May 12, 1990, and the author's field measurements taken in July 1996.

Dimensions for the crossed lower lateral bracing rods are unknown. Pin-connected roller-bearing expansion joints support the bridge on the Upshur County side. The bridge piers are four concrete-filled caisson-like structures fabricated from riveted steel plates. Vertical bracing is fabricated from channels and crossed tension rods.

III. Bridge History

In the late spring of 1911, the merchants of Big Sandy, Texas, were in a difficult position. Sometime in the previous twelve months, a heavy load of timber collapsed the wooden bridge across the Sabine River on the main road between Tyler, seat of Smith County, and Gilmer, seat of Upshur County. The wooden bridge was constructed in 1903 at the site of a ferry that had been in operation for over fifty years. Big Sandy, the principal town of southwestern Upshur County, was on the Tyler-Gilmer road and was served by two railroads: the Texas and Pacific and the Saint Louis Southwestern (Cotton Belt). The railroad depots made Big Sandy an important cotton market and the wooden bridge gave the local merchants access to the cotton fields of northern Smith County. With the bridge out and the cotton harvest expected in September and October, the merchants stood to endure serious losses.³

The Upshur County Commissioners' Court responded to the situation decisively. On July 11, 1911, the Commissioners created a committee to negotiate for the construction of a steel bridge with their counterparts in Smith County. They arranged for Austin Brothers of Dallas, who had recently constructed a bridge across the Big Sandy Creek for them, to draw up plans and specifications for the bridge. Sealed bids were solicited on the specifications. Meanwhile, the citizens of Big Sandy organized a committee to solicit contributions for construction of the new bridge. Twenty-eight individuals and companies subscribed a total of \$1,177.50. On the first of August, the commissioners met in Big Sandy to award the contract. After examining bids from Austin Brothers, Missouri Valley Bridge Company (Leavenworth, Kansas), El Paso Bridge Company, and F. H. Allsberry and Company (Houston), the commissioners rejected them on the grounds they were excessive. Fearing the expense and delay that would result from advertising for new bids, however, the commissioners called for open bids. Austin Brothers was awarded the contract on the basis of a \$5,350 bid, \$20 less than the open bid made by Allsberry and Company's agent. The efforts of all concerned "to push the work so as to have the bridge in readiness for the fall cotton traffic," as the *Big Sandy Times* put it, apparently came to naught. It was not until late December that the commissioners contracted "for putting in the earth fill at North end of Sabine River Bridge at Waters Bluff crossing." On January 17, 1912, the

³ Georgia Laschinger to James Wilkins September 19 and 20, 1968 (field note copy courtesy of Mary Kirby, Gilmer, Texas); Leath, p. 5; Doyal T. Loyd, *A History of Upshur County, Texas* (Waco, Texas: Texian Press, 1966), pp. 72, 58-59.

commissioners of both counties formally accepted the completed bridge with Smith County, contributing \$1,200.⁴

Several unexplained entries in the Upshur County Commissioners' Court *Minutes* for 1915 suggest that the matter was not closed when the bridge was accepted.

IT IS ORDERED By the Commissioners Court of Upshur County that Judge W H McClelland be fully empowered to take any steps that he may consider necessary to protect the best interest Upshur County in the Sabine River bridge matter.⁵

IT IS ORDERED by the Commissioners Court of Upshur County that J L George be reimbursed the sum of \$620.84, being the amount paid out by him for freight and demurrage on Sabine River bridge.⁶

IT IS HEREBY ordered by the Commissioners Court of Upshur County that W H McClelland, County Judge, take charge and supervise the Sabine River bridge work; that he handle the pay toll [sic] and issue orders to the clerk for such amounts as may be necessary in carrying on said work to completion.⁷

Newspapers from this period, which might shed light on a problem that was probably well-known and that the commissioners might have preferred not to detail in the *Minutes*, are unavailable for this period.⁸

After these mysterious developments, the history of the bridge appears to have been routine until July 18, 1992. Late that Saturday morning, a northbound cement mixer truck carrying about five times the rated load of the bridge safely crossed both the south approach and

⁴ Upshur County, *Commissioners' Court Minutes* (hereafter cited as UCCC *Minutes*), vol. 4 (Upshur County Courthouse, Gilmer, Texas), p. 183 (July 11, 1911), p. 197 (July 31, 1911), pp. 198-99 (August 1, 1911); first quotation from "Bridge Will Be Built," *Big Sandy Times*, reprinted in *The Gilmer Mirror*, August 3, 1911, p. 1; second quotation from UCCC *Minutes*, vol. 4, p. 241 (December 20, 1911); UCCC *Minutes*, vol. 4, p. 247 (January 17, 1912); "New Bridge Is Accepted," *Big Sandy Times*, reprinted in *The Gilmer Mirror*, January 25, 1912; Smith County, *Commissioners' Court Minutes*, vol. 7 (Smith County Courthouse, Tyler, Texas), p. 577.

⁵ UCCC *Minutes*, May 11, 1915.

⁶ *Ibid.*, June 14, 1915.

⁷ *Ibid.*

⁸ UCCC *Minutes*, vol. 5, pp. 38-39 (May 11 and June 14, 1915).

the main span, only to collapse the north approach.⁹ The bridge is scheduled for replacement in August of 1996.

IV. Austin Brothers

In the 1910s, the bridge fabrication and erection business of George L. and Frank E. Austin became the dominant bridge company in Texas. George Austin entered the business in 1889 as southern agent for the Des Moines, Iowa, firm of George E. King Bridge Company. George Austin would open a branch in Atlanta, Georgia. Besides erecting bridges for George E. King, Austin Brothers also sold road machinery. In 1908 and 1910 the brothers became an independent company and acquired a site for a fabrication plant. Thus when Austin Brothers won the contract for the Waters Bluff Bridge they were a new firm but one backed by two decades of experience in the region. In 1918, Charles R. Moore, a senior executive with the company, purchased the contracting and erection part of the business and reorganized it under the name Austin Brothers Bridge Company.¹⁰

⁹ Mac Overton, "Truck Crushes Old Bridge," *The Gilmer Mirror*, July 22, 1992, p. 1.

¹⁰ Shannon Miller, *The First 50 Years: 1918-1968* (Dallas: Austin Bridge Company, 1974), pp. 1-2.

SOURCES CONSULTED

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- Wisenbaker, Fix and Associates, Inc. Bridge Inspection Report, May 12, 1990. Texas Department of Transportation District Office, Atlanta, Texas.

APPENDIX A: Suggestions for Further Research

This recording project has raised several issues that remain unanswered due to limitations of time and resources:

1. A quick search of the Archives of Austin Industries, successor firm to Austin Brothers, conducted by David Vance, Director of Communications, revealed no record of the bridge or its construction contract. A more extended examination of the Archives using this report as a point of departure might uncover useful information.
2. Is the lower third of the vertical tension members connecting U1 with L1 and U7 with L7 composed of two channels a typical or an unusual solution? The 1909 Bryant Station Bridge (HAER No. TX-60), for example, uses a member that is essentially identical to the vertical compression members used on the rest of the truss. What are the implications of the different solutions?
3. The Center for American History, University of Texas at Austin, has a civil engineering thesis written in the 1910s that involved designing a camelback truss. Not only might it reveal much about contemporary design procedures, but it might also help establish whether the Waters Bluff Bridge was progressive, standard, or retardataire for its day.
4. What was "Sabine River bridge matter" of 1915 about?

APPENDIX B: Elevation and Section

From Wisenbaker, Fix and Associates, Inc., Bridge Inspection Report, May 12, 1990
(Texas Department of Transportation District Office, Atlanta, Texas).

